

## CLAIMS

What is claimed is:

1. A weight detecting device for a microwave oven, comprising:  
a weight detecting unit supported at an end thereof, and detecting a weight according to a force applied to a free end thereof; and  
a support unit to support the weight detecting unit.
2. The weight detecting device according to claim 1, wherein the support unit supports the weight detecting unit at a position spaced apart from a top plate of an interior casing of the microwave oven by a predetermined height.
3. The weight detecting device according to claim 2, wherein the support unit is mounted to the top plate of the interior casing.
4. The weight detecting device according to claim 1, further comprising a food seating unit, wherein the weight detecting unit detects the weight according to an external force generated by food placed on the food seating unit, the food seating unit being provided on a top plate of an exterior casing of the microwave oven.
5. The weight detecting device according to claim 4, wherein the food seating unit comprises:  
a tray bracket integrated with the top plate of the exterior casing;  
a rubber packing mounted to the tray bracket; and  
a locking ring to lock the rubber packing to the tray bracket.
6. The weight detecting device according to claim 1, wherein the weight detecting unit comprises:  
a weight sensor having a predetermined length, supported at an end thereof by the support unit, and detecting the weight according to an external force applied to a free end thereof; and

a force transmitting unit mounted to the free end of the weight sensor so as to transmit the external force to the free end of the weight sensor.

7. The weight detecting device according to claim 6, wherein the weight sensor is provided with at least one heat dissipating hole.

8. The weight detecting device according to claim 6, wherein the force transmitting unit comprises:

a support plate having a predetermined area; and

a rod, provided adjacent to the support plate, to concentrate the force applied to the support plate on the free end of the weight sensor.

9. A weight detecting device with a support unit for a microwave oven, comprising:  
a weight detecting unit comprising a beam fixed at one end thereof to the support unit, to detect a weight placed on a free end of the beam based on a deflection of the beam.

10. A weight detecting device for a microwave oven, comprising:  
a weight detecting unit comprising a cantilever beam for which a displacement of a free end thereof is substantially resistant to temperature variation so as to detect a weight placed on the free end of the cantilever beam based on the displacement of the free end thereof.

11. A weight detecting device for a microwave oven, comprising:  
a weight detecting unit comprising a cantilever beam for which a displacement of a free end thereof is substantially resistant to temperature variation, and detecting a weight according to a force applied to the free end of the cantilever beam causing the displacement of the free end of the cantilever beam.

12. A weight detecting device with a support unit for a microwave oven, comprising:  
a weight detecting unit supported at an end thereof by the support unit, and detecting a weight according to a force applied to a free end thereof.

13. The weight detecting device according to claim 12, wherein the support unit supports the weight detecting unit at a position spaced apart from a top plate of an interior casing of the microwave oven by a predetermined height.

14. The weight detecting device according to claim 13, wherein the support unit is mounted to the top plate of the interior casing.

15. The weight detecting device according to claim 12, further comprising a food seating unit to transmit to the weight detecting unit an external force generated by the food placed on the food seating unit, the food seating unit being provided on a top of the microwave oven.

16. The weight detecting device according to claim 15, wherein the food seating unit comprises:

- a tray bracket integrated with the top of the microwave oven;
- a rubber packing mounted to the tray bracket; and
- a locking ring locking the rubber packing to the tray bracket.

17. The weight detecting device according to claim 12, wherein the weight detecting unit comprises:

- a weight sensor having a predetermined length, supported at a fixed end thereof by the support unit, and detecting the weight according to an external force applied to a free end thereof;
- and

- a transmitting unit mounted to the free end of the weight sensor so as to transmit the external force to the free end of the weight sensor.

18. The weight detecting device according to claim 17, wherein the transmitting unit comprises:

- a shaft positioned perpendicular to the free end of the weight sensor to transmit the external force applied to a food seating unit to the free end of the weight sensor.

19. The weight detecting device according to claim 18, wherein the weight sensor comprises:  
a beam supported by the support unit and communicating with the shaft of the transmitting unit; and  
one or more heat dissipating holes formed in the beam at a predetermined portion of the beam so as to allow the beam to bend in response to the external force applied to the free end of the weight sensor and to dissipate heat generated by the microwave oven.
20. The weight detecting device according to claim 17, wherein the transmitting unit comprises:  
a support plate; and  
a rod, positioned between the support plate and the weight sensor, to concentrate the external force applied to the support plate onto the free end of the weight sensor.
21. The weight detecting device according to claim 19, wherein the weight sensor further comprises:  
upper and lower sensing elements provided on each of upper and lower surfaces of a central portion of the beam of the weight sensor, respectively, such that a variation, according to a displacement of the beam of the weight sensor, in the internal resistance of the upper and lower sensing elements is detected.
22. The weight detecting device according to claim 19, wherein, when the weight sensor is bent in response to the load applied to the free end of the weight sensor, the upper surface of the beam of the weight sensor having the upper sensing element expands while the lower surface of the beam of the weight sensor having the lower sensing element contracts to change an internal resistance of the upper and low sensing elements.
23. The weight detecting device according to claim 19, wherein the weight sensor is made of an elastic material to bend by the external force applied to the shaft.
24. A microwave oven comprising:  
an interior casing disposed therein with a top plate thereof;

a support unit; and  
a weight detecting unit supported on the interior casing at a fixed end of the weight detecting unit by the support unit, and detecting a weight according to a force applied to a free end of the weight detecting unit.

25. The microwave oven according to claim 24, wherein the support unit supports the weight detecting unit at a position spaced apart from the top plate of the interior casing by a predetermined height.

26. The microwave oven according to claim 25, wherein the support unit is mounted to the top plate of the interior casing.

27. The microwave oven according to claim 24, further comprising:  
an exterior casing with a top plate thereof; and  
a weight detecting device comprising a food seating unit to transmit to the weight detecting unit an external force generated by food placed on the food seating unit, the food seating unit being provided on the top plate of the exterior casing.

28. The microwave oven according to claim 27, wherein the food seating unit comprises:  
a tray bracket integrated with the top plate of the exterior casing;  
a rubber packing mounted to the tray bracket; and  
a locking ring to lock the rubber packing to the tray bracket.

29. The microwave oven according to claim 24, wherein the weight detecting unit comprises;  
a weight sensor having a length, supported at a fixed end thereof by the support unit, and detecting the weight according to an external force applied to a free end thereof; and  
a transmitting unit mounted to the free end of the weight sensor so as to transmit the external force to the free end of the weight sensor.

30. The weight detecting device according to claim 29, wherein the weight sensor comprises:

a beam supported by the support unit and communicating with the shaft of the transmitting unit; and

one or more heat dissipating holes formed in the beam at a predetermined portion of the beam so as to allow the beam to bend in response to the external force applied to the free end of the weight sensor and to dissipate heat generated by the microwave oven.

31. The microwave oven according to claim 29, wherein the transmitting unit comprises:  
a support plate; and  
a rod, positioned between the support plate and the weight sensor, to concentrate the external force applied to the support plate onto the free end of the weight sensor.

32. The microwave oven according to claim 29, wherein the weight sensor comprises:  
upper and lower sensing elements provided on each of upper and lower surfaces of a central portion of the beam of the weight sensor, respectively, such that a variation, according to a displacement of the beam of the weight sensor, in the internal resistance of the upper and lower sensing elements is detected.

33. The microwave oven according to claim 30, wherein, when the weight sensor is bent in response to the load applied to the free end of the weight sensor, the upper surface of the beam of the weight sensor having the upper sensing element expands while the lower surface of the beam of the weight sensor having the lower sensing element contracts to change an internal resistance of the upper and low sensing elements.

34. The microwave oven according to claim 30, wherein the weight sensor is made of an elastic material to bend by the external force applied to the shaft.

35. A method of detecting a weight of food using a microwave oven, comprising:  
fixing one end of a weight detecting device of the microwave oven;  
deflecting a free end of the weight detecting device by the weight of the food placed thereon;  
detecting the weight of the food according to a deflection result of the free end of the weight detecting device; and

dissipating heat generated by the microwave oven in the weight detecting device so as to substantially prevent a variation in the detected weight by heat generated by the microwave oven.

36. The method according to claim 35, wherein the dissipating of heat generated comprises:

spacing apart a weight sensor of the weight detecting device from a top of the microwave oven by a predetermined height; and

forming, in the weight sensor, one or more heat dissipating holes to dissipate the heat generated by the microwave oven.

37. A microwave oven, comprising:

an interior casing disposed therein with a top plate thereof;

a support unit; and

a weight detecting unit with a beam thereof, supported on the interior casing at a fixed end of the weight detecting unit by the support unit, to detect a weight placed on a free end of the beam based on a deflection of the beam.

38. A microwave oven, comprising:

an interior casing disposed therein with a top plate thereof;

a support unit; and

a weight detecting unit with a cantilever beam, supported on the interior casing at a fixed end of the weight detecting unit by the support unit, for which a displacement of a free end thereof is substantially resistant to temperature variation so as to detect a weight placed on the free end of the cantilever beam based on the displacement of the free end thereof.

39. A microwave oven, comprising:

an interior casing disposed therein with a top plate thereof;

a support unit; and

a weight detecting unit with a cantilever beam, supported on the interior casing at a fixed end of the weight detecting unit by the support unit, for which a displacement of a free end thereof is substantially resistant to temperature variation , and detecting a weight according to a force applied to the free end of the cantilever beam causing the displacement of the free end of the cantilever beam.

40. A microwave oven, comprising:  
an interior casing disposed therein with a top plate thereof;  
a support unit; and  
a weight detecting unit only a part of which is supported by the support unit to allow displacement thereof and to reduce a space to install the weight detecting unit.